

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 1 188 615 A3

(12)

## EUROPEAN PATENT APPLICATION

(88) Date of publication A3:  
09.06.2004 Bulletin 2004/24

(51) Int Cl.7: B60Q 3/00, B60Q 1/32

(43) Date of publication A2:  
20.03.2002 Bulletin 2002/12

(21) Application number: 01118961.0

(22) Date of filing: 06.08.2001

(84) Designated Contracting States:  
**AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR**

Designated Extension States:  
**AL LT LV MK RO SI**

(30) Priority: 13.09.2000 DE 10045171

(71) Applicant: **ITW Automotive Products GmbH & Co.  
KG  
58636 Iserlohn (DE)**

(72) Inventor: **Stapf, Uwe  
97285 Röttingen (DE)**

(74) Representative: **Patentanwälte  
Hauck, Graalfs, Wehnert, Döring, Siemons,  
Schildberg  
Neuer Wall 41  
20354 Hamburg (DE)**

(54) **Actuation means for actuating a functional part in an automobile by means of a handle portion or the like**

(57) Actuation means for actuating a functional part in an automobile by means of a handle portion or the like, whereby at least a portion, e.g. a stripe of an electro

luminescence sheet is applied to a surface of said handle portion or adjacent to said handle portion and connected to an electric source.

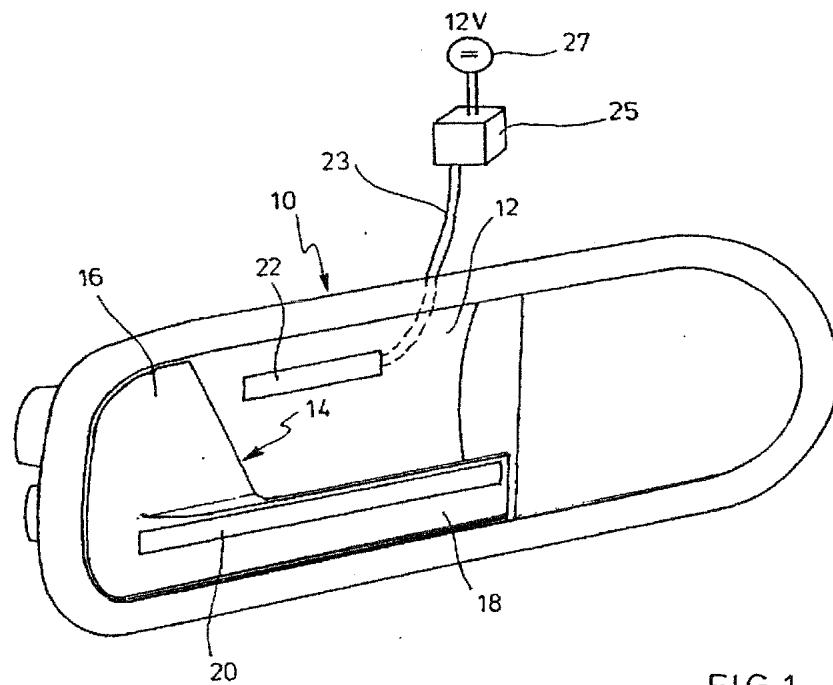


FIG.1



**European Patent  
Office**

## **EUROPEAN SEARCH REPORT**

**Application Number**

EP 01 11 8961

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
X	DE 198 55 554 A (KOSTAL LEOPOLD GMBH & CO KG) 8 June 2000 (2000-06-08) * column 2, line 58 - column 6, line 45 * * figures 1-4 * * claims 1-9 * -----	1,3-6	B60Q3/00 B60Q1/32
X	PATENT ABSTRACTS OF JAPAN vol. 0072, no. 46 (M-253), 2 November 1983 (1983-11-02) & JP 58 133934 A (NISSAN JIDOSHA KK; others: 01), 9 August 1983 (1983-08-09) * abstract * * figures 1,3-6 *	1-3,5,6	
X	DE 297 19 025 U (FER FAHRZEUGELEKTRIK GMBH) 11 December 1997 (1997-12-11) * page 1 - page 4 * * figures 1,2 * * claims 3,6 *	1,3,7	
Y	DE 298 04 183 U (THOMAS PAUL ; STUEBER ERHARD (DE)) 14 May 1998 (1998-05-14) * page 4, line 11 - page 6, line 22 * * figures 1-3 * * claims 2,13 *	5	
Y	DE 299 22 972 U (SIEGEMUND RAINER) 16 March 2000 (2000-03-16) * page 1, line 21 - page 2, line 24 * * page 3, line 6 - line 16 * * page 4, line 1 - page 8, line 23 * * figures 1,2 *	1-7	
	----- ----- ----- -----	-/-	
The present search report has been drawn up for all claims			
Place of search	Date of completion of the search	Examiner	
Munich	7 April 2004	Goltes, M	
CATEGORY OF CITED DOCUMENTS			
X : particularly relevant if taken alone	T : theory or principle underlying the invention		
Y : particularly relevant if combined with another document of the same category	E : earlier patent document, but published on, or after the filing date		
A : technological background	D : document cited in the application		
O : non-written disclosure	L : document cited for other reasons		
P : intermediate document	& : member of the same patent family, corresponding document		



European Patent  
Office

## EUROPEAN SEARCH REPORT

Application Number  
EP 01 11 8961

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	US 5 566 384 A (CHIEN TSENG-LU) 15 October 1996 (1996-10-15) * column 1, line 13 - line 40 * * column 2, line 23 - column 4, line 3 * * figures 3,6 *	1-7	
A	DE 299 17 921 U (FER FAHRZEUGELEKTRIK GMBH) 30 December 1999 (1999-12-30) * page 2 - page 4 * * figures 1-4 *	1,4,7	
A	DE 41 20 677 A (VOLKSWAGENWERK AG) 9 January 1992 (1992-01-09) * column 1, line 25 - column 2, line 68 * * figure 1 *	1,5	
A	EP 0 302 463 A (MITSUBISHI CABLE IND LTD) 8 February 1989 (1989-02-08) * column 5, line 44 - column 8, line 36 * * column 15, line 5 - column 16, line 11 * * figures 18,19 *	1	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
<p>The present search report has been drawn up for all claims</p>			
Place of search  Munich	Date of completion of the search  7 April 2004	Examiner  Goltes, M	
CATEGORY OF CITED DOCUMENTS  X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons ..... & : member of the same patent family, corresponding document	
EPO FORM 1503/03-02 (P04C01)			

**ANNEX TO THE EUROPEAN SEARCH REPORT  
ON EUROPEAN PATENT APPLICATION NO.**

EP 01 11 8961

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.  
The members are as contained in the European Patent Office EDP file on  
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

07-04-2004

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
DE 19855554	A	08-06-2000	DE	19855554 A1	08-06-2000
JP 58133934	A	09-08-1983	NONE		
DE 29719025	U	11-12-1997	DE	29719025 U1	11-12-1997
DE 29804183	U	14-05-1998	DE	29804183 U1	14-05-1998
US 5434013	A	18-07-1995	NONE		
DE 29922972	U	16-03-2000	DE	29922972 U1	16-03-2000
			DE	10064099 A1	05-07-2001
US 5566384	A	15-10-1996	NONE		
DE 29917921	U	30-12-1999	DE	29917921 U1	30-12-1999
DE 4120677	A	09-01-1992	DE	4120677 A1	09-01-1992
EP 0302463	A	08-02-1989	JP	64025933 U	14-02-1989
			DE	3881446 D1	08-07-1993
			DE	3881446 T2	02-12-1993
			EP	0302463 A2	08-02-1989
			US	5013967 A	07-05-1991
			JP	1281603 A	13-11-1989

(19)



Europäisches Patentamt  
European Patent Office  
Office européen des brevets



(11)

EP 1 188 615 A2

(12)

## EUROPEAN PATENT APPLICATION

(43) Date of publication:  
20.03.2002 Bulletin 2002/12

(51) Int Cl. 7: B60Q 3/00

(21) Application number: 01118961.0

(22) Date of filing: 06.08.2001

(84) Designated Contracting States:  
AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU  
MC NL PT SE TR

Designated Extension States:  
AL LT LV MK RO SI

(30) Priority: 13.09.2000 DE 10045171

(72) Inventor: Stäpf, Uwe  
97285 Röttingen (DE)

(74) Representative: Patentanwälte  
Hauck, Graafls, Wehnert, Döring, Siemons  
Neuer Wall 41  
20354 Hamburg (DE)

(71) Applicant: ITW Automotive Products GmbH & Co.  
KG  
58636 Iserlohn (DE)

(54) **Actuation means for actuating a functional part in an automobile by means of a handle portion or the like**

(57) Actuation means for actuating a functional part in an automobile by means of a handle portion or the like, whereby at least a portion, e.g. a stripe of an electro-

luminescence sheet is applied to a surface of said handle portion or adjacent to said handle portion and connected to an electric source.

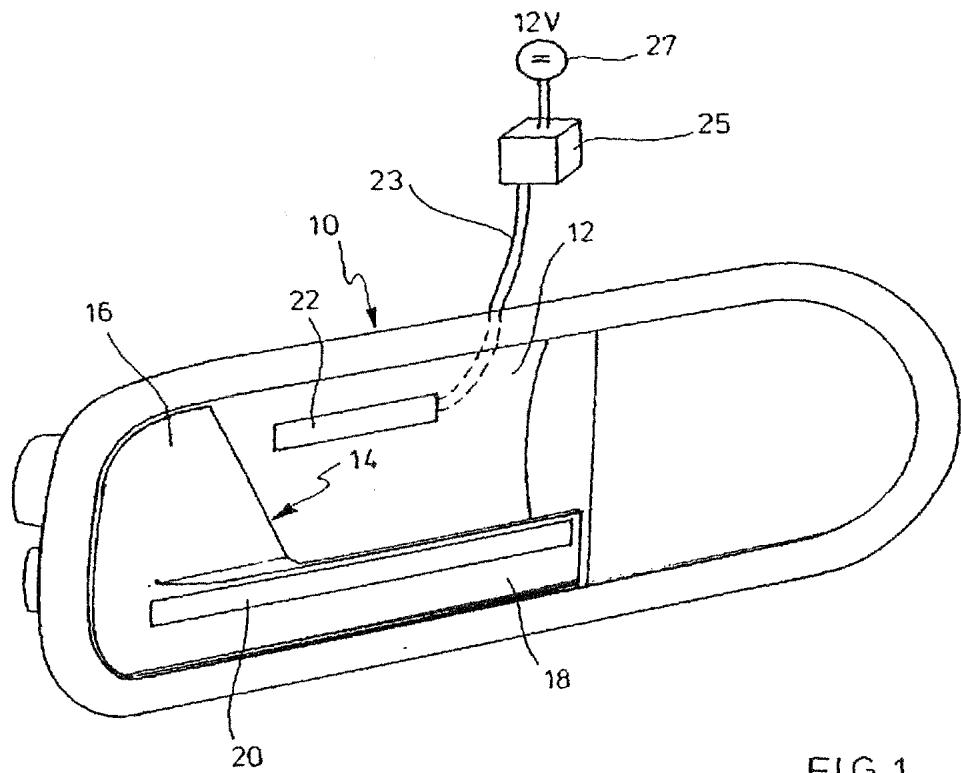


FIG. 1

**Description**

**[0001]** The invention relates to an actuation means for actuating a functional part in an automobile by means of a handle portion or the like according to the preamble of claim 1.

**[0002]** Actuation means in the sense of the invention are the actuators of an automobile door, for example. However, other handle portions for actuating functional parts such as a shift lever of a gear, the actuator of a glove compartment flap or an ash-tray or the like are also possible.

**[0003]** It is possibly difficult to find such actuation means in the dark. Although it is known, for example, to effect a remote control of the central locking of an automobile while simultaneously lighting the interior of the automobile, but it will be difficult to find the door handle even then. The same is true for a door inside actuation means, particularly if the door inside light is not turned on. Of course, comparable things also apply to other actuation means which, in particular, are disposed in the interior of the automobile. Apart from door actuation means, there are more actuation means at the outside, e.g. those for a fuel filler door, the trunk lid or the engine hood. All of these actuation means possibly are difficult to seize in the dark.

**[0004]** Therefore, it is the object of the invention to provide an actuation means for actuating a functional part of an automobile, which can also be easily recognized in the dark, by means of a handle portion.

**[0005]** It is known to light desired surfaces and parts of the automobile using light-emitting diodes or incandescent lamps. For the parts to be actuated, such lighting devices prove to be useful only to a limited extent because they mostly require a lot of space for their installation and possibly are not always up to the harsh conditions caused by operating them and/or by the climate.

**[0006]** The object of the invention is achieved by the features of claim 1.

**[0007]** In the invention, at least a portion, e.g. a stripe of an electro luminescence sheet, is applied to a surface of the handle portion or adjacent to the handle portion and is connected to an electric power source.

**[0008]** Electro luminescence sheets are known as such. They have the property of giving a light when connected to a certain voltage. They need a voltage which is relatively high and also a higher frequency, e.g. of 400 cps at 100 volts, but require a current which is very low so that safety aspects need not be considered. For voltage supply, a transformer has to be provided to convert the 12 V d.c. voltage which normally is provided in the automobile into the supply voltage needed for the electro luminescence sheet. Such transformers are known as such. They are appropriately housed at a suitable point in the automobile, possibly in the vicinity of the electro luminescence sheet. It should be understood that cables which serve the purpose are then led from

the transformer to the sheet on the actuation part or handle portion. Since such actuation parts mostly are formed from plastic material there are neither insulation problems nor need appropriate bushings, channels or the like be provided for the cables. For plastic components, it is also possible to integrate corresponding supply lines by casting them into the plastic components during manufacture or to embed them therein in another way.

**[0009]** According to an aspect of the invention, the stripe of the electro luminescence sheet is covered by a transparent sheet-like cover. This makes it possible to protect the electro luminescence sheet against mechanical or other impacts.

**[0010]** The power source may have an electric circuitry which is such as to connect it to the electro luminescence sheet permanently or at intervals. Also, it is imaginable to temporarily supply a suitable sheet at the door outside actuation means with a voltage if a remote control of the central locking is effected. It is known to automatically turn on the interior lighting while withdrawing the ignition key in the automobile. If there is a door inside actuation means which is provided with an electro luminescence sheet it could also be turned on temporarily at the same time.

**[0011]** Instead of visibly attaching the luminescence sheet to the handle portion it is also imaginable to mount it in a hidden way so that indirect lighting takes place. As an alternative, the luminescence sheet may be mounted adjacent to the handle portion on an adjoining surface of the automobile, e.g. with a view to lighting the handle portion indirectly.

**[0012]** The stripe-shaped electro luminescence sheet according to the invention may be attached to the surface of the handle portion or another surface by means of a self-adherent layer. The self-adherent layer is conveniently protected by a suitable protective film prior to its use.

**[0013]** In order to protect the stripe-shaped portion of the electro luminescence sheet against mechanical impacts, another aspect of the invention provides that an appropriate pocket that receives the sheet portion be disposed in the surface.

**[0014]** The invention will now be described in more detail below with reference to embodiments shown in the drawings.

Fig. 1: shows a perspective view of a door inside actuation means according to the invention.

Fig. 2: shows a perspective view of a door outer actuation means.

Fig. 3: shows the invisible side of the door outer actuation means of Fig. 2.

**[0015]** With reference to Fig. 1, a component 10 which, in part, is tray-shaped can be seen and adapted to be inserted in a suitable recess of a door trim panel of an automobile. It is integrally formed from a suitable

plastic material. An actuation lever 14 is pivotably supported in a recess 12 facing the interior of the vehicle. It is supported approximately about a vertical axis above the portion 16, which fact is not shown, however. An elongate, narrow portion 18 which is spaced from the bottom of the recess 12 extends to the right from the portion 16 in Figure 1. When the door is actuated the portion 18 is gripped behind by the fingers of a hand so as to pivot the lever 14 into the interior of the vehicle in order to open the door lock. The parts described are known per sé so that it is unnecessary to discuss more details.

[0016] As can be appreciated a narrow stripe 20 extends from portion 16 into portion 18 and is parallel with the latter. The stripe 20 consists of an electro luminescence sheet which is known as such, and is attached by a self-adherent layer, for example. Another stripe 22 which is somewhat shorter is attached to the bottom of the recess 12 in the same way. It will be readily possible to omit one of the two strips 20, 22.

[0017] The stripes 20, 22 may be protected by a suitable transparent cover sheet which, for example, is made of PC or PMMA. The stripes 20, 22 may also be disposed in an appropriate pocket, which fact is not shown here, so as not to protrude beyond the surface of the recess 12 or portions 16, 18.

[0018] The stripes 20, 22 are connected to an electric connection cable 23 via contacts or connections which are not shown and which lead to a transformer 25 which is disposed in the automobile. It is connected, in turn, to the power supply 27 of the automobile. For example, the transformer converts the voltage of 12 volts into a voltage of 100 V at a frequency of 400 cps. If such a voltage is applied to the stripes 20 or 22 these will give a light and also light the area directly surrounding them so that the passenger of the automobile will be able to discern the handle portion 14 even in the dark and to easily grip it.

[0019] The cables leading to the stripes 20, 22 may be embedded in the plastic material from which the handle portion 14 and the component 10 are formed. They may be provided with appropriate connections which are such as to automatically achieve a cable connection to the transformer or a corresponding circuitry during the installation of component 10.

[0020] The circuitry, which partially forms part of the transformer, provides that lighting which is desired is brought about at a desired time or during a desired period of time.

[0021] Referring to Fig. 2, the skin of a door (not shown) of an automobile is outlined at 26, in which skin a hollow 28 is formed. The hollow 28 is bridged over by a bow-like handle portion 30 which can be moved away from the door in a fashion approximately in parallel with itself to open the door lock. A portion 32 which is fixedly connected to the door skin merely serves for protecting the handle portion 30 and to create a gentle transition.

[0022] As can be seen the outside of the handle por-

tion 30 has extended thereon a stripe 34, which is formed from an electro luminescence sheet and can be attached in a way which is the same as or similar to the one described in conjunction with the stripe 20, 22 of Fig. 1. The stripe is connected to a transformer 35 which, in turn, is connected to the voltage source 37.

[0023] Referring to Fig. 3, the handle portion 30 is shown as viewed from its rear side. It can be seen that it has a stripe, which is formed from an electro luminescence sheet, at its inside at 36. The way it is attached is comparable to the one of Fig. 1 and Fig. 2 also here. The stripe 36 permits indirect lighting as it lights the surface opposed to the stripe. This also makes it possible for a vehicle passenger to find the handle portion in an easy way. The stripe 36 is also connected to the transformer 35.

## Claims

20

1. Actuation means for actuating a functional part in an automobile by means of a handle portion or the like, characterized in that at least a portion, e.g. a stripe of an electro luminescence sheet is applied to a surface of said handle portion or adjacent to said handle portion and connected to an electric source.

25

2. Actuation means of claim 1, wherein said portion has a transparent sheet-like cover.

30

3. The actuation means of claim 1 or 2, wherein the electric source has an electric circuit such that it is connected to the electro luminescence sheet permanently or at intervals.

35

4. The actuation means of claim 1, wherein the electro luminescence sheet is applied to a surface of the handle portion which is not visible by the passengers of the automobile and faces a surface of the automobile.

40

5. The actuation means of claim 1, wherein a pressure-sensitive adhesive is applied to the electro luminescence sheet in order to apply the sheet to a surface of the handle portion.

45

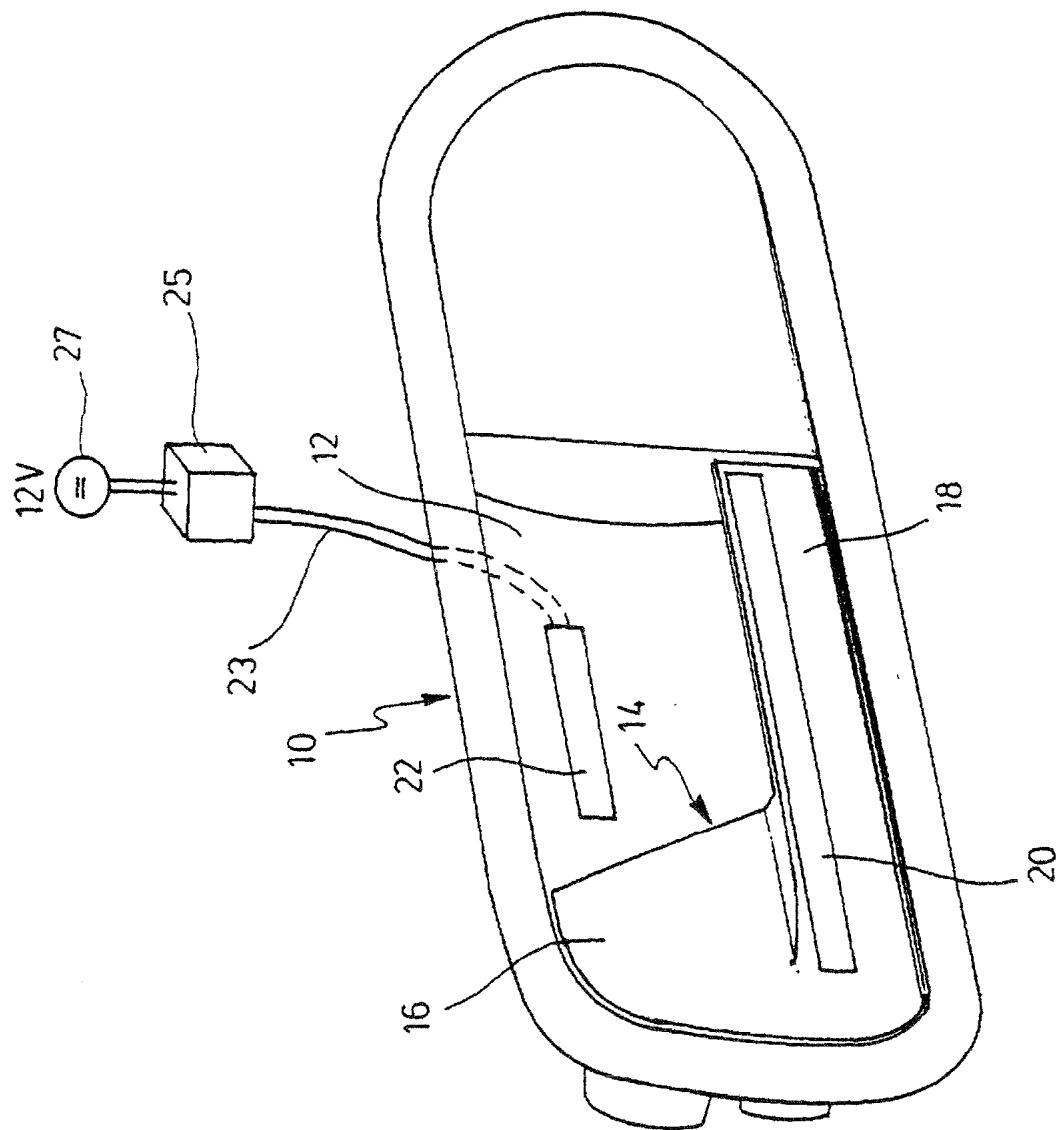
6. The actuation means of claim 1, wherein the electro luminescence sheet is located in a depression of said surface.

50

7. The actuation means of claim 1, wherein the handle portion is the inner or outer door handle of the automobile.

55

FIG.1



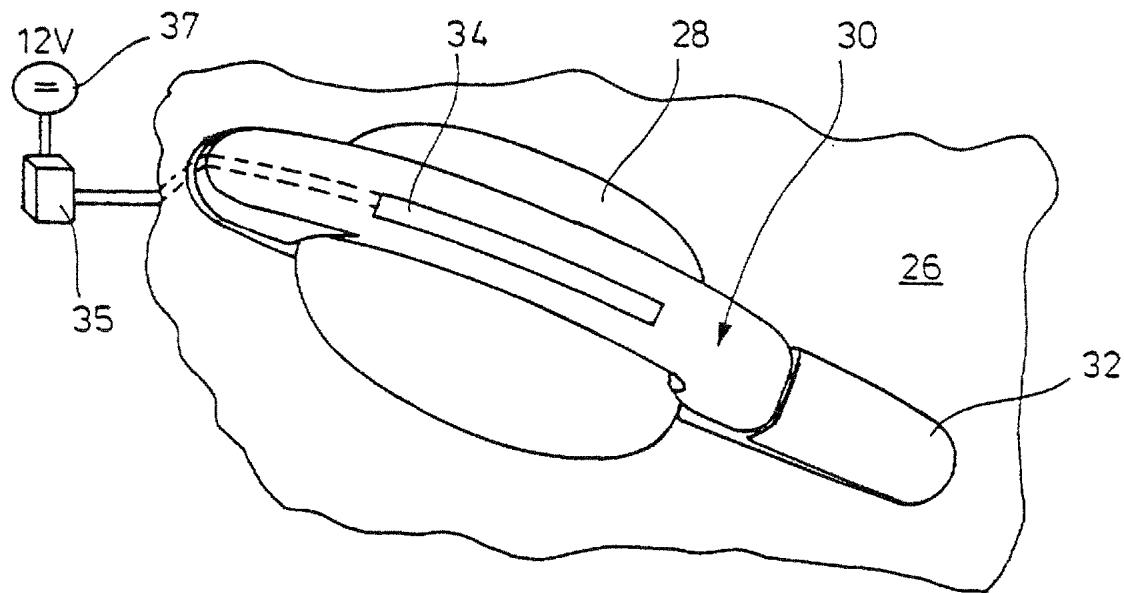


FIG.2

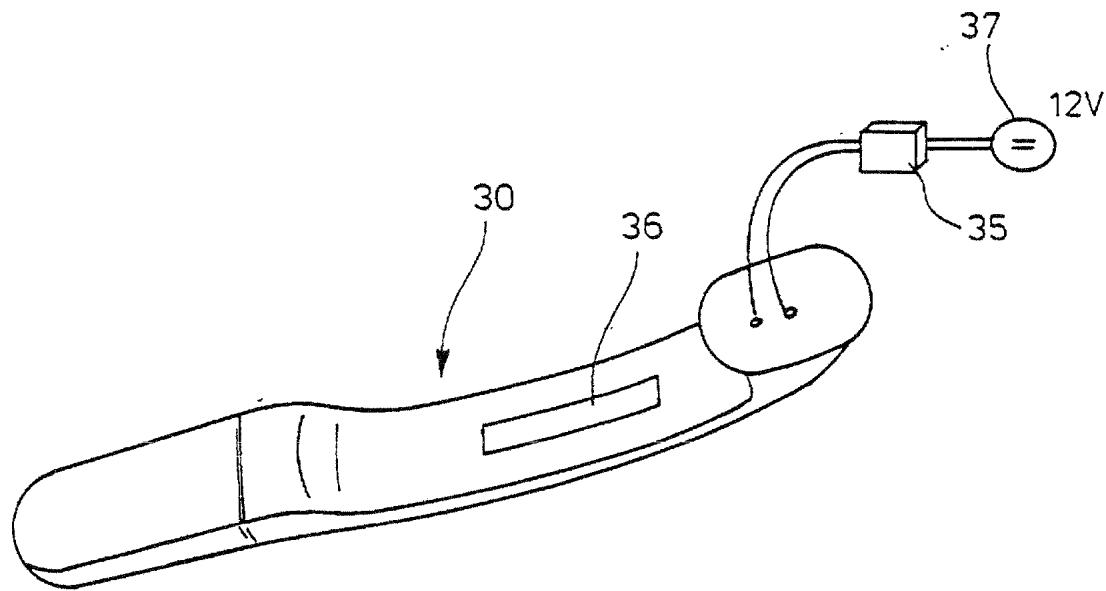


FIG.3

